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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/567,317	Applicant(s) JONES ET AL.	
	Examiner Alejandro Rivero	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 12 March 2007.
2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-16,18 and 26-41 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) 1-16,18 and 26-41 is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on 06 February 2006 is/are: a)☐ accepted or b)☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a)☐ All b)☐ Some * c)☒ None of:
1.☒ Certified copies of the priority documents have been received.
2.☐ Certified copies of the priority documents have been received in Application No. _____.
3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in United Kingdom on 08/07/2003. It is noted, however, that applicant has not filed a certified copy of the application as required by 35 U.S.C. 119(b).

Drawings

2. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code (www.3gpp.org in page 6 line 15). Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Claim Objections

4. Claim 26 is objected to because of the following informalities:

In claim 26 (line 2), the examiner respectfully suggests inserting "comprising" after "base station" (or applicant's choice of word(s) indicating that the items which follow are part of the base station)

Appropriate correction is required.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 36-39 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 36 recites "A computer program product comprising program code for noise variance estimation of a detected signal". Claims to computer data structures and programs per se are not statutory subject matter and are ineligible for patenting. See MPEP 2106 IV B 1(a). Claims 37-39 are rejected because they depend from claim 36. In order to overcome the rejection under 35 U.S.C. 101, the examiner respectfully suggests modifying the preamble of the claim to include that the program code is stored in a tangible medium (such as clarifying that the computer program product is a tangible medium for storing the program code) and that the program code is to be executed by a processor, if such modifications are supported by the specification.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 2, 4, 10, 11, 13, 34, 36, 37, 39, 40 and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by Giorgi et al. (US 5,802,446).

Consider claim 1, Giorgi et al. disclose a method for noise variance estimation of a detected signal comprising receiving a signal and producing therefrom in a detector (receiver with test means) a detected signal (column 1 line 48- column 2 line 53, column 3 line 66- column 4 line 16, column 5 lines 6-50 where Giorgi et al. disclose a calling station and a called station, sending and receiving a sequence (signal), performing measurements and calculations (during transmission, hence detected signal) and estimating SNR via test means); producing from the received signal a first noise variance signal representative of noise variance in the received signal (column 1 line 48- column 2 line 53, column 5 lines 6-50, column 6 lines 49-57 where Giorgi et al. disclose calculating a noise variance to be used for SNR estimation); and producing from the detected signal and the first noise variance signal a second noise variance signal representative of noise variance estimation in the received signal (column 1 line 48- column 5 line 50, column 6 lines 49-57 where Giorgi et al. disclose calculating SNR using the channel transfer function (reads on second noise variance signal since the transfer function takes into account the noise variance, thus it is representative of the noise variance and it also takes into account the power of the received (detected) signal)).

Consider claims 2 and 4, Giorgi et al. disclose all the limitations as applied to claim 1 above and also disclose wherein the step of producing the second noise variance signal comprises applying a function equal to the detector's transfer function to the first noise variance signal (column 1 line 48- column 5 line 50, column 6 lines 49-57 where Giorgi et al. disclose calculating SNR using the channel transfer function (hence applying a transfer function) taking into account the noise variance) and producing from the second noise variance signal and an estimate of total power at the detector output a signal-to-interference ratio signal representative of SIR in the received signal (column 1 line 48- column 5 line 50, column 6 lines 49-57 where Giorgi et al. disclose calculating SNR (reads on SIR) using the channel transfer function which takes into account the power of the received (detected) signal).

Consider claim 10, Giorgi et al. disclose a user equipment (station) capable of noise variance estimation of a detected signal comprising a detector (receiver with test means) for receiving a signal and detecting therein a detected signal (column 1 line 48- column 2 line 53, column 3 line 66- column 4 line 16, column 5 lines 6-50 where Giorgi et al. disclose a test means with a processor and a calling station and a called station, sending and receiving a sequence (signal), performing measurements and calculations (during transmission, hence detected signal) and estimating SNR via test means); first noise variance logic for producing from the received signal a first noise variance signal representative of noise variance in the received signal (column 1 line 48- column 2 line 53, column 5 lines 6-50, column 6 lines 49-57 where Giorgi et al. disclose a test means with a processor, calculating a noise variance to be used for SNR estimation); and

second noise variance logic for producing from the detected signal and the first noise variance signal a second noise variance signal representative of noise variance estimation in the received signal (column 1 line 48- column 5 line 50, column 6 lines 49-57 where Giorgi et al. disclose a test means with a processor, calculating SNR using the channel transfer function (reads on second noise variance signal since the transfer function takes into account the noise variance, thus it is representative of the noise variance and it also takes into account the power of the received (detected) signal)).

Consider claims 11 and 13, Giorgi et al. disclose all the limitations as applied to claim 10 above and also disclose wherein the second noise variance logic is arranged to apply a function equal to the detector's transfer function to the first noise variance signal (column 1 line 48- column 5 line 50, column 6 lines 49-57 where Giorgi et al. disclose a test means with a processor, calculating SNR using the channel transfer function (hence applying a transfer function) taking into account the noise variance) and signal-to-interference ratio estimation logic for producing from the second noise variance signal and an estimate of total power at the detector output an SIR signal representative of SIR in the received signal (column 1 line 48- column 5 line 50, column 6 lines 49-57 where Giorgi et al. disclose a test means with a processor, calculating SNR (reads on SIR) using the channel transfer function which takes into account the power of the received (detected) signal).

Consider claim 34, Giorgi et al. disclose a user equipment comprising a memory, a processor coupled to the memory and program code executable on the processor (column 1 line 48- column 2 line 53, column 3 line 66- column 4 line 16, column 5 line 6-

column 6 line 57 where Giorgi et al. disclose a test means with a processor and a calling station and a called station, sending and receiving a sequence (signal), performing measurements and calculations (hence executable code) and estimating SNR via test means and comparing it to a known value, therefore a memory component is inherent since in order to compare a calculated value to a known value at the processor it would be necessary to have the known value in a memory component connected to the processor), the program code operable for receiving a signal and producing therefrom in a detector a detected signal (column 1 line 48- column 2 line 53, column 5 lines 6-50, column 6 lines 49-57 where Giorgi et al. disclose a test means with a processor, calculating a noise variance to be used for SNR estimation); producing from the received signal a first noise variance signal representative of noise variance in the received signal (column 1 line 48- column 2 line 53, column 5 lines 6-50, column 6 lines 49-57 where Giorgi et al. disclose a test means with a processor, calculating a noise variance to be used for SNR estimation); and producing from the detected signal and the first noise variance signal a second noise variance signal representative of noise variance estimation in the received signal (column 1 line 48- column 5 line 50, column 6 lines 49-57 where Giorgi et al. disclose a test means with a processor, calculating SNR using the channel transfer function (reads on second noise variance signal since the transfer function takes into account the noise variance, thus it is representative of the noise variance and it also takes into account the power of the received (detected) signal)).

Consider claim 36 (and the rejection under 35 U.S.C. 101 above), Giorgi et al. disclose a computer program product comprising program code for noise variance estimation of a detected signal comprising program code for receiving a signal and producing therefrom in a detector a detected signal (column 1 line 48- column 2 line 53, column 3 line 66- column 4 line 16, column 5 lines 6-50 where Giorgi et al. disclose a test means with a processor and a calling station and a called station, sending and receiving a sequence (signal), performing measurements and calculations (during transmission, hence disclosing detected signal and program code) and estimating SNR via test means); producing from the received signal a first noise variance signal representative of noise variance in the received signal (column 1 line 48- column 2 line 53, column 5 lines 6-50, column 6 lines 49-57 where Giorgi et al. disclose a test means with a processor, calculating a noise variance to be used for SNR estimation); and producing from the detected signal and the first noise variance signal a second noise variance signal representative of noise variance estimation in the received signal (column 1 line 48- column 5 line 50, column 6 lines 49-57 where Giorgi et al. disclose a test means with a processor, calculating SNR using the channel transfer function (reads on second noise variance signal since the transfer function takes into account the noise variance, thus it is representative of the noise variance and it also takes into account the power of the received (detected) signal)).

Consider claims 37 and 39, Giorgi et al. disclose all the limitations as applied to claim 36 above and also disclose wherein the program code is further operable to apply a function equal to the detector's transfer function to the first noise variance signal

(column 1 line 48- column 5 line 50, column 6 lines 49-57 where Giorgi et al. disclose a test means with a processor, calculating SNR using the channel transfer function (hence applying a transfer function) taking into account the noise variance) and producing from the second noise variance signal and an estimate of total power at the detector output an SIR signal representative of SIR in the received signal (column 1 line 48- column 5 line 50, column 6 lines 49-57 where Giorgi et al. disclose a test means with a processor, calculating SNR (reads on SIR) using the channel transfer function which takes into account the power of the received (detected) signal).

Consider claim 40, Giorgi et al. disclose a communication system arranged to provide for noise variance estimation of a detected signal comprising a detector (receiver with test means) for receiving a signal and detecting therein a detected signal (column 1 line 48- column 2 line 53, column 3 line 66- column 4 line 16, column 5 lines 6-50 where Giorgi et al. disclose a test means with a processor and a calling station and a called station, sending and receiving a sequence (signal), performing measurements and calculations (during transmission, hence detected signal) and estimating SNR via test means); first noise variance logic for producing from the received signal a first noise variance signal representative of noise variance in the received signal (column 1 line 48- column 2 line 53, column 5 lines 6-50, column 6 lines 49-57 where Giorgi et al. disclose a test means with a processor, calculating a noise variance to be used for SNR estimation); and second noise variance logic for producing from the detected signal and the first noise variance signal a second noise variance signal representative of noise variance estimation in the received signal (column 1 line 48- column 5 line 50, column 6

lines 49-57 where Giorgi et al. disclose a test means with a processor, calculating SNR using the channel transfer function (reads on second noise variance signal since the transfer function takes into account the noise variance, thus it is representative of the noise variance and it also takes into account the power of the received (detected) signal)).

Consider claim 41, Giorgi et al. disclose an integrated circuit (DSP processor) for receiving and detecting therein a detected signal (column 1 line 48- column 2 line 53, column 3 line 66- column 4 line 16, column 5 lines 6-50 where Giorgi et al. disclose a calling station and a called station, sending and receiving a sequence (signal), performing measurements and calculations (made by DSP processor, during transmission, hence detected signal) and estimating SNR via test means); comprising first noise variance means for producing from the received signal a first noise variance signal representative of noise variance in the received signal (column 1 line 48- column 2 line 53, column 5 lines 6-50, column 6 lines 49-57 where Giorgi et al. disclose a test means with a processor, calculating a noise variance to be used for SNR estimation); and second noise variance means for producing from the detected signal and the first noise variance signal a second noise variance signal representative of noise variance estimation in the received signal (column 1 line 48- column 5 line 50, column 6 lines 49-57 where Giorgi et al. disclose a test means with a processor, calculating SNR using the channel transfer function (reads on second noise variance signal since the transfer function takes into account the noise variance, thus it is representative of the noise variance and it also takes into account the power of the received (detected) signal)).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 26, 27, 29 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giorgi et al. in view of Ryde et al. (US 6,181,739 B1).

Consider claim 26, Giorgi et al. disclose a station capable of noise variance estimation of a detected signal comprising a detector (receiver with test means) for receiving a signal and detecting therein a detected signal (column 1 line 48- column 2 line 53, column 3 line 66- column 4 line 16, column 5 lines 6-50 where Giorgi et al. disclose a test means with a processor and a calling station and a called station (bidirectional), sending and receiving a sequence (signal), performing measurements and calculations (during transmission, hence detected signal) and estimating SNR via test means); first noise variance logic for producing from the received signal a first noise variance signal representative of noise variance in the received signal (column 1 line

48- column 2 line 53, column 5 lines 6-50, column 6 lines 49-57 where Giorgi et al. disclose a test means with a processor, calculating a noise variance to be used for SNR estimation); and second noise variance logic for producing from the detected signal and the first noise variance signal a second noise variance signal representative of noise variance estimation in the received signal (column 1 line 48- column 5 line 50, column 6 lines 49-57 where Giorgi et al. disclose a test means with a processor, calculating SNR using the channel transfer function (reads on second noise variance signal since the transfer function takes into account the noise variance, thus it is representative of the noise variance and it also takes into account the power of the received (detected) signal)).

Giorgi et al. do not specify calculating the noise variance in a base station.

Ryde et al. disclose a base station calculating noise variance (column 3 lines 34-47 column 6 lines 33-45).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to calculate the noise variance as taught by Giorgi et al. in a base station as taught by Ryde et al. since it would be advantageous to measure noise variance (and obtain therefrom SNR) in a base station of a radio communication system in order to make decisions regarding channel assignments or handoff (since SNR is an indicator of channel/connection quality), thus selecting the most suitable connection (as suggested by Giorgi et al. in column 1 lines 5-8, column 2 lines 5-44, column 6 lines 11-23, column 6 lines 58-63 and as suggested by Ryde et al. in column 1 lines 18-22,

column 1 lines 41-52, column 2 lines 27-36, column 6 lines 33-45 and column 6 lines 62-67).

Consider claims 27 and 29, Giorgi et al. in view of Ryde et al. disclose all the limitations as applied to claim 26 above and also disclose wherein the second noise variance logic is arranged to apply a function equal to the detector's transfer function to the first noise variance signal (column 1 line 48- column 5 line 50, column 6 lines 49-57 of Giorgi et al., where Giorgi et al. disclose a test means with a processor, calculating SNR using the channel transfer function (hence applying a transfer function) taking into account the noise variance) and signal-to-interference ratio estimation logic for producing from the second noise variance signal and an estimate of total power at the detector output an SIR signal representative of SIR in the received signal (column 1 line 48- column 5 line 50, column 6 lines 49-57 of Giorgi et al., where Giorgi et al. disclose a test means with a processor, calculating SNR (reads on SIR) using the channel transfer function which takes into account the power of the received (detected) signal).

Consider claim 35, Giorgi et al. disclose a station comprising a memory, a processor coupled to the memory and program code executable on the processor (column 1 line 48- column 2 line 53, column 3 line 66- column 4 line 16, column 5 line 6- column 6 line 57 where Giorgi et al. disclose a test means with a processor and a calling station and a called station, sending and receiving a sequence (signal), performing measurements and calculations (hence executable code) and estimating SNR via test means and comparing it to a known value, therefore a memory component is inherent since in order to compare a calculated value to a known value at the

processor it would be necessary to have the known value in a memory component connected to the processor), the program code operable for receiving a signal and producing therefrom in a detector a detected signal (column 1 line 48- column 2 line 53, column 5 lines 6-50, column 6 lines 49-57 where Giorgi et al. disclose a test means with a processor, calculating a noise variance to be used for SNR estimation); producing from the received signal a first noise variance signal representative of noise variance in the received signal; and producing from the detected signal and the first noise variance signal a second noise variance signal representative of noise variance estimation in the received signal (column 1 line 48- column 5 line 50, column 6 lines 49-57 where Giorgi et al. disclose a test means with a processor, calculating SNR using the channel transfer function (reads on second noise variance signal since the transfer function takes into account the noise variance, thus it is representative of the noise variance and it also takes into account the power of the received (detected) signal)).

Giorgi et al. do not specify calculating the noise variance in a base station.

Ryde et al. disclose a base station calculating noise variance (column 3 lines 34-47 column 6 lines 33-45).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to calculate the noise variance as taught by Giorgi et al. in a base station as taught by Ryde et al. since it would be advantageous to measure noise variance (and obtain therefrom SNR) in a base station of a radio communication system in order to make decisions regarding channel assignments or handoff (since SNR is an indicator of channel/connection quality), thus selecting the most suitable connection (as

suggested by Giorgi et al. in column 1 lines 5-8, column 2 lines 5-44, column 6 lines 11-23, column 6 lines 58-63 and as suggested by Ryde et al. in column 1 lines 18-22, column 1 lines 41-52, column 2 lines 27-36, column 6 lines 33-45 and column 6 lines 62-67).

11. Claims 3, 5, 8, 9, 12, 14, 18 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giorgi et al. in view of Kim et al. (US 2003/0086380 A1).

Consider claims 3, 5, 8, 9, 12, 14, 18 and 38, Giorgi et al. disclose all the limitations as applied to claims 1, 10 and 36 above and also disclose producing the first noise variance signal (column 1 line 48- column 2 line 53, column 5 lines 6-50, column 6 lines 49-57 where Giorgi et al. disclose calculating a noise variance to be used for SNR estimation).

Giorgi et al. do not disclose deriving the first noise variance signal from a midamble portion of the received signal (as in claims 3, 12 and 38), wherein the detector is a CDMA multi-user detector (as in claims 5 and 14), wherein the signal is a wireless (as in claim 8) UMTS air interface signal (as in claims 9 and 18).

Kim et al. disclose deriving the first noise variance signal from a midamble portion of the received signal (paragraphs [0011]-[0017], [0028]-[0039], [0046]-[0061], reads on claims 3, 12 and 38), wherein the detector is a CDMA multi-user detector (paragraphs [0003]-[0012] where Kim et al. disclose estimation of noise variance and multi-user detection in WCDMA, reads on claims 5 and 14) and wherein the signal is a wireless UMTS air interface signal (paragraphs [0003]-[0012] where Kim et al. disclose noise variance estimation in UMTS, reads on claims 8, 9 and 18).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to derive the noise variance from the midamble portion of the signal and use a CDMA multi-user detector and receive a UMTS air interface signal as taught by Kim et al. in the method of Giorgi et al. since noise variance estimation is easy when active midambles are known and Kim et al. also provide an accurate noise variance determination algorithm, it would also be advantageous to measure noise variance (and obtain therefrom SNR) from wireless signals from different communication systems (UMTS, signals detected by CDMA multi-user detector) in order to make decisions regarding channel assignments or handoff (since SNR is an indicator of quality of channel/connection), thus selecting the most suitable connection (as suggested by Giorgi et al. in column 1 lines 5-8, column 2 lines 5-44, column 6 lines 11-23, column 6 lines 58-63 and as suggested by Kim et al. in paragraphs [0003]-[0012], [0017]-[0020] and [0058]-[0061]).

12. Claims 6, 7, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giorgi et al. in view of Karlsson et al. (US 2002/0057730 A1).

Consider claims 6, 7, 15 and 16, Giorgi et al. disclose all the limitations as applied to claims 1 and 10 above.

Giorgi et al. do not disclose wherein the detector is a CDMA single-user detector (as in claims 6 and 15) and the detector comprising a CDMA RAKE receiver (as in claims 7 and 16).

Karlsson et al. disclose a CDMA single-user detector (paragraphs [0132] and [0193]-[0196], reads on claims 6 and 15) and a detector comprising a CDMA RAKE receiver (paragraphs [0180]-[0190], reads on claims 7 and 16).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a CDMA single-user detector and a detector comprising a CDMA RAKE receiver as taught by Karlsson et al. in the method of Giorgi et al. since the adaptive single-user detector and RAKE receiver of Karlsson provide the benefit that they can be used for interference cancellation thus enhancing performance and it would be advantageous to measure noise variance (and obtain therefrom SNR) from wireless signals from different communication systems (such as signals detected by CDMA detector) in order to make decisions regarding channel assignments or handoff (since SNR is an indicator of quality of channel/connection), thus selecting the most suitable connection (as suggested by Giorgi et al. in column 1 lines 5-8, column 2 lines 5-44, column 6 lines 11-23, column 6 lines 58-63 and as suggested by Karlsson et al. in paragraphs [0002]-[0004], [0009], [0011], [0132], [0193]-[0196] and [0180]-[0190]).

13. Claims 28, 30 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giorgi et al. in view of Ryde et al. and further in view of Kim et al. (US 2003/0086380 A1).

Consider claims 28, 30 and 33, Giorgi et al. in view of Ryde et al. disclose all the limitations as applied to claim 26 above and also disclose producing the first noise variance signal (column 1 line 48- column 2 line 53, column 5 lines 6-50, column 6 lines

49-57 of Giorgi et al., where Giorgi et al. disclose calculating a noise variance to be used for SNR estimation).

Giorgi et al. as modified by Ryde et al. do not disclose deriving the first noise variance signal from a midamble portion of the received signal (as in claim 28), wherein the detector is a CDMA multi-user detector (as in claim 30), wherein the signal is a UMTS air interface signal (as in claim 33).

Kim et al. disclose deriving the first noise variance signal from a midamble portion of the received signal (paragraphs [0011]-[0017], [0028]-[0039], [0046]-[0061], reads on claim 28), wherein the detector is a CDMA multi-user detector (paragraphs [0003]-[0012] where Kim et al. disclose estimation of noise variance and multi-user detection in WCDMA, reads on claim 30) and wherein the signal is a wireless UMTS air interface signal (paragraphs [0003]-[0012] where Kim et al. disclose noise variance estimation in UMTS, reads on claim 33).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to derive the noise variance from the midamble portion of the signal and use a CDMA multi-user detector and receive a UMTS air interface signal as taught by Kim et al. in the method of Giorgi et al. as modified by Ryde et al. since noise variance estimation is easy when active midambles are known and Kim et al. also provide an accurate noise variance determination algorithm, it would also be advantageous to measure noise variance (and obtain therefrom SNR) from wireless signals from different communication systems (UMTS, signals detected by CDMA multi-user detector) in order to make decisions regarding channel assignments or handoff (since SNR is an

indicator of quality of channel/connection), thus selecting the most suitable connection (as suggested by Giorgi et al. in column 1 lines 5-8, column 2 lines 5-44, column 6 lines 11-23, column 6 lines 58-63 and as suggested by Ryde et al. in column 1 lines 18-22, column 1 lines 41-52, column 2 lines 27-36, column 6 lines 33-45 and column 6 lines 62-67, and as suggested by Kim et al. in paragraphs [0003]-[0012], [0017]-[0020] and [0058]-[0061]).

14. Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giorgi et al. in view of Ryde et al. and further in view of Karlsson et al. (US 2002/0057730 A1).

Consider claims 31 and 32, Giorgi et al. in view of Ryde et al. disclose all the limitations as applied to claim 26 above.

Giorgi et al. as modified by Ryde et al. do not disclose wherein the detector is a CDMA single-user detector (as in claims 6 and 15) and the detector comprising a CDMA RAKE receiver (as in claims 7 and 16).

Karlsson et al. disclose a CDMA single-user detector (paragraphs [0132] and [0193]-[0196], reads on claim 31) and a detector comprising a CDMA RAKE receiver (paragraphs [0180]-[0190], reads on claim 32).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a CDMA single-user detector and a detector comprising a CDMA RAKE receiver as taught by Karlsson et al. in the method of Giorgi et al. as modified by Ryde et al. since the adaptive single-user detector and RAKE receiver of Karlsson provide the benefit that they can be used for interference cancellation thus enhancing

performance and it would be advantageous to measure noise variance (and obtain therefrom SNR) from wireless signals from different communication systems (such as signals detected by CDMA detector) in order to make decisions regarding channel assignments or handoff (since SNR is an indicator of quality of channel/connection), thus selecting the most suitable connection (as suggested by Giorgi et al. in column 1 lines 5-8, column 2 lines 5-44, column 6 lines 11-23, column 6 lines 58-63 and as suggested by Ryde et al. in column 1 lines 18-22, column 1 lines 41-52, column 2 lines 27-36, column 6 lines 33-45 and column 6 lines 62-67, and as suggested by Karlsson et al. in paragraphs [0002]-[0004], [0009], [0011], [0132], [0193]-[0196] and [0180]-[0190]).

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Popovic (US 6,292,519 B1) discloses correcting SNR measurements.

Sourour et al. (US 6,157,820) disclose a multipath delay searcher for CDMA.

Mueller et al. (US 5,214,675) disclose calculating noise variance.

Sawahashi et al. (US 5,566,165) disclose a method for transmission power control.

Kostic et al. (US 5,648,983) disclose a matched filter RAKE receiver.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alejandro Rivero whose telephone number is 571-272-2839. The examiner can normally be reached on Monday-Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay

Maung can be reached on 571-272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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